

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Maria Anna Wubben et al.
Serial No.: 08/776,321
Filed: April 15, 1997
Title: PECTINS AS FOAM STABILIZERS FOR BEVERAGES HAVING A
FOAM HEAD
Examiner: C.E. Sherrer
Docket No.: 29865

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DECLARATION OF ALEXANDRA J.M. WIJSMAN

Alexandra Johanna Mathilda Wijsman herewith declares as follows:

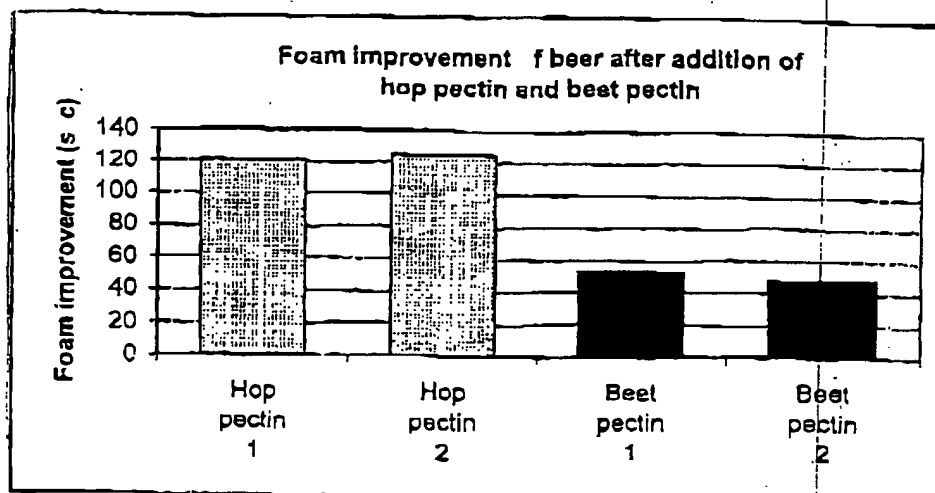
1. I presently reside at Hondsdrafveld 23, 3448 EC Woerden, the Netherlands.
2. I am an employee of Heineken Technical Services B.V. (the assignee of the present application) at Zoeterwoude, the Netherlands. I am a graduate of the Agricultural University of Wageningen, with a specialization in food technology. For about three years I have been involved in research on raw materials for the production of beer, such as polysaccharides.
3. In order to determine the effect of different types of pectin on the foam stability of beer, experiments were conducted either by myself or under my supervision. The experiments and results are as follows.
4. The experiments involved adding either hop pectin or beet pectin to a reference beer, which was a pilsner beer, and

then measuring the foam stability in seconds. Acid extracti n was used to obtain both the hop pectin and the beet pectin. Pectin extracts c ntaining hop pectin or beet pectin were dissolved in 5 ml water before being added to the reference beer at a rate of 30 mg pectin per bottle (10 g pectin per hectoliter of beer). The bottles were then shaken for 48 hours at room temperature. The foam stability was then measured in seconds using a Nibem foam meter.

5. Two hop pectin samples and two beet pectin samples were tested. Each sample was tested twice. The results of the tests are as follows. The weight percent of each pectin extract which was anhydrogalacturonic acid (AUA (% w/w)) is also given.

Samples	AUA (%w/w)	Foam Stability (sec)			Foam Improvement (sec)
		1	2	average	
Reference		281	275	278	-
Hop pectin 1	42.9	400	397	399	121
Hop pectin 2	50.5	404	401	403	125
Beet pectin 1	56.7	331	330	331	53
Beet pectin 2	59.9	327	323	325	47

see
experiment
7



6. At least two things can be seen from the test results. First, it can be seen that the addition of hop pectin improved the foam stability of the reference pilsner beer. The reference beer by itself had average foam stability of 278 seconds; the average foam stability of the reference beer after addition of the hop pectin was 401 seconds, an improvement of 123 seconds, a dramatic and surprising improvement. Second, the hop pectin improved foam stability dramatically and surprisingly more than the beet pectin. On average, the beet pectin improved foam stability 50 seconds. On average, the hop pectin improved foam stability 123 seconds, a dramatic and surprising improvement. It is also noted that hop pectin outperformed beet pectin despite the fact that it had lower weight percent AUA.

7. The results of the test were surprising and unexpected. It was surprising and unexpected that hop pectin would improve the foam stability of reference beer by over 120 seconds, an

improvement of over 44%. It was surprising and unexpected that h p pectin would improv the foam stability of reference beer by more than twice as many s c nds as beet p ctin.

8. The undersigned declares that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of this document, or application, or any patent issuing thereon.


Alexandra J.M. Wijsman

Date: 13 July 1999

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